## CLAIMS

What is claimed is:

1. A method of forming a plurality of contact holes in a contact layer of an integrated circuit device, wherein the plurality of contact holes includes a plurality of regularly spaced contact holes having a first pitch along a first direction and a plurality of semi-isolated contact holes having a second pitch along a second direction, said method comprising:

providing a photoresist layer over the contact layer;

exposing the photoresist layer to a double-dipole illumination source which transmits light energy through a mask having a pattern corresponding to a desired contact hole pattern, the exposing resulting in the desired contact hole pattern being transferred to the photoresist layer;

wherein the double-dipole illumination source includes a first dipole aperture, said first dipole aperture being oriented and optimized for patterning the regularly spaced contact holes, and a second dipole aperture, said second dipole aperture being oriented substantially orthogonal to the first dipole aperture and optimized for patterning the plurality of semi-isolated contact holes; and

etching the contact layer using the patterned photoresist layer.

2. The method as set forth in claim 1, wherein the first dipole aperture and the second dipole aperture have at least one of (i) different sizes and (ii) different spacings.

3. The method as set forth in claim 1, wherein the first dipole aperture is oriented substantially vertically and the second dipole aperture is oriented substantially horizontally.

4. The method as set forth in claim 3, wherein the first dipole aperture is spaced according to: $Dipole_x = \frac{\lambda}{2NA \cdot Pitch_x}$, where $Pitch_x$ is the first pitch; and

the second dipole pair/aperture is spaced according to:

$Dipole_y = \frac{\lambda}{2NA \cdot Pitch_y}$, where $Pitch_y$ is the second pitch.

5. The method as set forth in claim 1, wherein the first pitch is smaller than the second pitch.

6. The method as set forth in claim 1, wherein the regularly spaced contact holes have a pitch of about 120 nm to about 270 nm.

7. The method as set forth in claim 6, wherein the regularly spaced contact holes have a diameter of about 120 to about 270.

8. The method as set forth in claim 6, wherein the semi-isolated contact holes have a pitch of about 270 nm to about 500 nm.

9. The method as set forth in claim 1, wherein the exposing step includes a single exposure.

10. The method as set forth in claim 1, wherein the exposing step includes simultaneous illumination through the first and second dipole apertures.

11. The method as set forth in claim 1, wherein the mask is a binary mask.

12. The method as set forth in claim 1, wherein the double-dipole illumination source includes a light energy opaque substrate which defines a first pair of annular sector apertures and a second pair of annular sector apertures.

13. The method as set forth in claim 12, wherein the first pair of annular sector apertures and the second pair of annular sector apertures have at least one of (i) different sizes and (ii) different spacings.

14. An integrated circuit device having a contact layer processed in accordance with claim 1.

15. The method as set forth in claim 1, wherein the plurality of contact holes includes a plurality of irregularly spaced contact holes in a periphery region, said method further comprising:

exposing the photoresist layer in the periphery region to a low sigma illumination source which provides light energy transmitted through a second mask having a pattern corresponding to a second desired contact hole pattern.

16. The method as set forth in claim 15, wherein the second mask is a six percent attenuated phase shift mask.

17. An aperture plate for use with an illumination source for patterning a plurality of contact holes of varying pitch and density, the plurality of contact holes including a plurality of regularly spaced contact holes having a first pitch along a first direction and a plurality of semi-isolated contact holes having a second pitch along a second direction, said aperture plate comprising:

a substrate, said substrate defining (i) a first dipole pair of openings customized for patterning the plurality of regularly spaced contact hole openings and (ii) a second dipole pair of openings customized for patterning the plurality of semi-isolated contact hole openings.

18. The aperture plate as set forth in claim 17, wherein the first dipole pair of openings is different than the second dipole pair of openings.

19. The aperture plate as set forth in claim 18, wherein the first dipole pair of openings and the second dipole pair of openings have at least one of (i) different sizes and (ii) different spacings.

20. The aperture plate as set forth in claim 16, wherein the first dipole pair of openings is oriented along the second direction and the second dipole pair of openings is oriented along the first direction.